

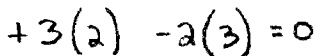
Review Before the Quiz

Name: Key

SHOW ALL WORK, SHOW ALL UNITS IN EVERY STEP.

CALCULATE THE MOLAR MASS:

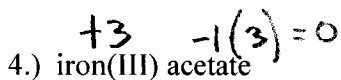
1.) sodium phosphate



2.) nickel(III) carbonate

$$\text{Ni}_2(\text{CO}_3)_3 : 2(58.93\text{g}) + 3(12.01\text{g}) + 9(16\text{g}) = 297.89\text{g/mol}$$

3.) lead(II) sulfate



4.) iron(III) acetate

$$\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3 : 55.85\text{g} + 6(12.01\text{g}) + 9(1.008\text{g}) + 6(16\text{g}) = 232.982\text{g/mol}$$

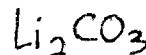
5.) Calculate the number of molecules in 568 milligrams of gold(III) nitrate

6.) Calculate the mass (in kilograms) if a sample of manganese(IV) oxide has  $4.98 \times 10^{26}$  molecules in the sample.

		86.94g	MnO <sub>2</sub>		
MOLECULES					
$4.98 \times 10^{26}$		1 mol MnO <sub>2</sub>		54.94g + 2(16g)	
		6.02 x 10 <sup>23</sup>		1 mol MnO <sub>2</sub>	
		MOLECULES			
				1 kg	=
				10 <sup>3</sup> g	71.9 kg MnO <sub>2</sub>

7.) Calculate the number of moles of copper(I) nitride if a sample has  $1.52 \times 10^{25}$  atoms of nitrogen in the sample.

8.) Calculate the number of oxygen atoms in a 44.0 kilogram sample lithium carbonate.



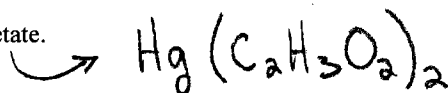
1.08 x 10<sup>27</sup> ATOMS OF OXYGEN

44.0 kg		10 <sup>3</sup> g		1 mol Li <sub>2</sub> CO <sub>3</sub>		6.02 x 10 <sup>23</sup> molecules		3 OXYGEN ATOMS
		1 kg		2(6.94g) + 12.01g + 3(16g)		1 mol		1 molecule Li <sub>2</sub> CO <sub>3</sub>
				73.89g				



9.) Calculate the mass (in grams) for  $3.33 \times 10^{28}$  molecules of chromium(III) iodate.

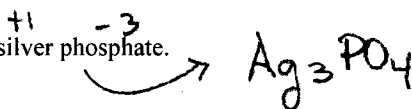
10.) Calculate the number of molecules in a 7.45 moles of mercury(II) acetate.



$$\frac{7.45 \text{ mol} \mid 6.02 \times 10^{23} \text{ MOLECULES}}{1 \text{ mol Hg}(\text{C}_2\text{H}_3\text{O}_2)_2} = 4.48 \times 10^{24} \text{ MOLECULES}$$

11.) Calculate the mass (in milligrams) for 45.4 moles of titanium(III) sulfate.

12.) Calculate the number of silver atoms in a 0.556 kilogram sample of silver phosphate.



$$\frac{0.556 \text{ kg} \mid 10^3 \text{ g} \mid 1 \text{ mol Ag}_3\text{PO}_4}{1 \text{ kg} \mid 3(107.87\text{g}) + 30.97\text{g} + 4(16\text{g}) \mid 1 \text{ mol}} \mid \frac{6.02 \times 10^{23} \text{ MOLECULES}}{1 \text{ MOLECULE Ag}_3\text{PO}_4} \mid 3 \text{ SILVER ATOMS}$$

$418.58\text{g}$

$2.40 \times 10^{24} \text{ Ag ATOMS}$

13.) Calculate the number of molecules in a  $1.44 \times 10^7$  nanogram sample of zinc nitrate.

14.) Calculate the number of moles in a  $3.63 \times 10^5$  gram sample of carbon dioxide gas.

$$\frac{3.63 \times 10^5 \text{ g}}{12.01\text{g} + 2(16\text{g})} \mid 1 \text{ mol CO}_2 = 8.25 \times 10^3 \text{ mol CO}_2$$

$44.01\text{g}$

15.) Calculate the mass (in kilograms) for a sample of ammonium phosphate that has  $8.88 \times 10^{28}$  atoms of nitrogen in the sample.